Distribution and molecular analysis of *Blastocystis* subtypes from gastrointestinal symptomatic and asymptomatic patients in Iran

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Abstract

Introduction: *Blastocystis* is a common intestinal parasite of human and animal hosts. The parasite has 17 subtypes, and among those at least nine subtypes (ST1-ST9) are found in human hosts.

Objective: The aim of the present study was to investigate the presence of different subtypes of *Blastocystis* spp. among the patients referred to Velayat hospital of Qazvin province, Iran.

Methods: Overall, 864 stool samples were examined by using formalin-ethyl acetate concentration method and Trichrome staining. All specimens were cultured in clotted fetal bovine medium. Later, DNA extraction and PCR amplification of 18S ribosomal RNA gene region was conducted and phylogenetic tree constructed.

Results: The results revealed 7.9% (68/864) of the study population were infected with *Blastocystis*. Intestinal symptoms were observed in 61% (36/59) of individuals positive for *Blastocystis*, with abdominal pain in 58% (21/36) of cases which was more frequent than other intestinal signs. No significant relationship was observed among the study variables. By molecular and phylogenetic analysis, three subtypes ST1 (45%), ST2 (30%) and ST3 (23%) of parasite were identified.

Conclusion: This study showed ST1 subtype was the predominant subtype among the positive specimens, meanwhile the highest haplotype and nucleotide diversity were clarified in ST3 subtype.

Keywords: *Blastocystis*, subtype, Phylogenetic analysis, Iran.

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Introduction

Blastocystis is an anaerobic parasite of human and animal intestinal tract. According to phylogenetic approach, the parasite belongs to Stramenopiles of the Eukaryota[1]. The parasite is a common intestinal microorganism reported in epidemiological surveys[2]. High frequency of this parasite may be due to the reluctance of physicians to treat self-limiting infections or resistance of the parasite to anti-parasitic drugs in conventional treatment, therefore, *Blastocystis* could easily colonize intestinal empty niches. Moreover, *Blastocystis* could reside as a non-pathogenic microorganism in the healthy human